

Attachment
Reasons for Requesting a Pre-Appeal Brief Request for Review

Applicant is requesting a Pre-Appeal Brief Request for Review on the basis that the Examiner has failed to satisfy all elements required for a *prima facie* rejection under 35 U.S.C. §102(a) and (b), 35 U.S.C. §103(a), or 35 U.S.C. §112.

A. Final Office Action

The present application includes four sets of claims: Claims 1 and 5 are directed to a cementitious composition; Claims 26, 27 and 33 are directed to a cementitious product; Claims 34, 36, 37, 39 and 40 are directed to a method of manufacturing a cementitious product; and Claim 41 is directed to a method of manufacturing a structural product.

Claims 1, 5, 26, 27, 33, 34, 36, 37, and 39-41 stand rejected under a Final Office Action dated September 26, 2007. Specifically, Claims 1, 5, 26, 27, 33, 34, 36, 37, and 39-41 stand rejected under 35 U.S.C. §112, second paragraph. Claims 1, 5, 26, 27, 33, 34, 36, 37, and 39-41 stand rejected under 35 U.S.C. §102(a) and (b) as anticipated by or, in the alternative, under 35 U.S.C. §103(a) as being obvious over U.S. Patent No. 5,849,075 to Hopkins et al., U.S. Patent No. 5,772,751 to Nisnevich et al., U.S. Patent No. 6,528,547 B2 to Shulman, U.S. Patent No. 4,050,950 to Brewer et al., U.S. Patent No. 4,050,261 to Brewer et al., and/or US Patent No. 3,961,973 to Jones.

B. Invention

The present invention provides a high-strength cementitious composition for mixing with an effective amount of water to form a structural product, wherein the cementitious composition of the present invention advantageously is formed of a lightweight aggregate and pozzolan such that the composition weighs less per unit volume than conventional cementitious compositions yet has seven-day and twenty-eight-day compressive strengths exceeding those of conventional concrete mixtures, including mixtures containing by-products from pulverized coal combustion. As disclosed in the specification of the present application, structural products formed from mixing the cementitious compositions with the effective amount of water have seven-day compressive strengths of at least about 2,500 psi and twenty-eight-day compressive strengths of at least about 4,000 psi.

Independent Claims 1, 26, 34, and 40 each recite that the cementitious composition of the present invention comprises:

bottom ash, the bottom ash comprising a first portion and a second portion, the second portion comprising a particle size between .75 inches to .003 inches and the first portion comprising a particle size of less than about .006 inches, the first and second portions

being mixed together to provide a particle distribution for the bottom ash wherein approximately fifty percent of the bottom ash has a particle size less than about .012 inches; and wherein the bottom ash and the cement are in a ratio between 2:1 and 2:3 by weight.

C. Prior Art

The Hopkins '075 patent discloses a cementitious composition comprising Portland cement in association with a pozzolanic material that includes ground bottom ash. The bottom ash is ground to a particle size in which 80 to 100% and, preferably, 85 to 90% pass a 45 µm screen so that the resulting bottom ash is a highly active pozzolan. As noted in Example 1 of the Hopkins '075 patent (Cols. 3 and 4), this results in the bottom ash having the same fineness as fly ash. Hopkins further discloses that the pozzolanic material preferably comprises an admixture of bottom ash and silica fume (Col. 2, ll. 63-67), since "the use of only ground bottom ash with the Portland cement results in a drop in compressive strength...." (See Col. 5, Example 2). Hopkins also discloses mixing the cementitious composition with a mineral aggregate, such as a coarse aggregate having a particle size of approximately 5 to 20 mm and/or a fine aggregate like sand.

The Nisnevich '751 patent discloses a concrete comprising cement, bottom ash and an additive that is preferably fly ash. As disclosed in Nisnevich (see the Example at Col. 15, ll. 1027), the use of only cement and bottom ash resulted in a twenty-eight day compressive strength of 4.9 MPa (710 psi).

The Shulman '547 patent discloses a synthetic aggregate and method of producing the same. According to Shulman, the synthetic aggregate is made by curing and then crushing a compressed product made from an aqueous cementitious mixture comprising cement, bottom ash, fly ash and other adjuvants and fillers, including polystyrene foam particles, water proofer, plasticizer, crushed glass. (See Examples 1-28, Cols. 8-15.)

The Brewer '261 and '950 patents disclose a method of backfilling and a controlled density fill material containing fly ash, respectively. As disclosed in both the Brewer '261 and '950 patents, the fill material comprises Portland cement, fly ash, aggregate (berm aggregates and Maumee Estuary sand). (See Col. 2, ll.31-37 and Col. 3, ll. 34-44 of both the '261 and '950 patents).

The Jones '973 patent discloses a lightweight aggregate for use in concrete mixes with Portland cement consisting essentially of bottom ash that is sized using a vibrating screen to remove particles exceeding 3/8 inch in diameter. In embodiments where the bottom ash is recovered from pond ash, the bottom ash is further sized using hydraulic classifier to separate the heavy particles in excess of 4.0 specific gravity from the pond ash.

D. Legal Precedent

A rejection based upon 35 U.S.C. §112, second paragraph, “is appropriate only where applicant has stated, somewhere other than in the application as filed, that the invention is something different from what is defined by the claims. In other words, the invention set forth in the claims must be presumed, in the absence of evidence to the contrary, to be that which applicants regard as their invention.” *See* § MPEP 2172(I).

The basic requirement of a *prima facie* case of anticipation under 35 U.S.C. §102(a) and (b) is that each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. *See* MPEP §2131.

The basic requirement of a *prima facie* case of obviousness 35 U.S.C. §103(a) is a clear articulation of the reason(s) why the claimed invention “as a whole” would have been obvious. *See* MPEP §2142. The determination of patentability is based on the entire record, by a preponderance of evidence, which legal standard requires the evidence to be more convincing than the evidence which is offered in opposition to it. *See* MPEP §2142. In other words, as explained in MPEP §2142, “the Examiner must provide evidence which as a whole shows that the legal determination sought to be proved (*i.e.*, the reference teachings establish a *prima facie* case of obviousness) is more probable than not.”

E. Application of Legal Precedent to Final Rejections

1. 35 U.S.C. §112, second paragraph

The Final Office Action rejects Claims 1, 5, 26, 27, 33, 34, 36, 37, and 39-41 under 35 U.S.C. §112, second paragraph, as failing to set forth the subject matter which Applicant regards as the invention. Specifically, the Office Action asserts at page 3 that “[t]he terms ‘first portion’ and ‘second portion’... are indefinite because there is overlap between both particle size portions and it is not possible to distinguish clearly between the two portions in all independent claims or wherever it occurs in applicants’ claims.”

Regarding the overlap between the particle sizes of the first and second portions, the specification clearly explains that in preparing the “primarily” coarse portion “not all particles having a particle size below about 5.9 mil (150 μ m) are removed by screening.” (*See* page 11, ll. 20-21). Independent Claim 1, 26, 34, and 41 recite that particle size distributions of both the “first portion” and “second portion” and further recites that the first and second portions are then mixed together to provide a particle distribution wherein approximately fifty percent of the bottom ash has a particle size less than about .012 inches.

Since the Office Action does not contend that Applicant has stated, somewhere other than in the application as filed, that the invention is something different from what is defined by the claims, *see*

MPEP § 2172(I), Applicant submits that the rejection under 35 U.S.C. §112, second paragraph, is improper and should be reversed.

2. 35 U.S.C. §102 (a) and (b)

The Office Action does not cite specifically where any of the cited references teaches the particle distribution ranges of the first and second portions (*i.e.*, the first portion comprising a particle size of less than about .006 inches and the second portion comprising a particle size between .75 inches to .003 inches), the mixing of the first and second portions together, the resulting particle distribution of the bottom ash as a whole (*i.e.*, wherein approximately fifty percent of the bottom ash has a particle size less than about .012 inches) and/or that the bottom ash and the cement are in a ratio between 2:1 and 2:3 by weight. The reason for this is that none of the cited references teach any of these claimed elements, much less the combination of the claimed elements. However, even assuming *arguendo* that one or more of the cited references teaches a particle distribution range for bottom ash that overlaps the particle distribution ranges of the first and second portions **and** the resulting particle distribution of the bottom ash as a whole, which Applicant submits is not the case, none of the cited references disclose the claimed subject matter with "sufficient specificity to constitute an anticipation under the statute." *See* § MPEP 2131.03(II). In addition, the cited references do not teach sizing the first and second portions and mixing the first and second portions together and/or that the bottom ash and the cement are mixed in a ratio between 2:1 and 2:3 by weight.

Accordingly, since no single cited reference teaches each and every element of the claimed invention, Applicant submits that the rejection under 35 U.S.C. §102(a) and (b) is improper and should be reversed.

3. 35 U.S.C. §103(a)

Applicant reiterates that the Office Action does not cite specifically where any of the cited references teaches the particle distribution ranges of the first and second portions (*i.e.*, the first portion comprising a particle size of less than about .006 inches and the second portion comprising a particle size between .75 inches to .003 inches), the mixing of the first and second portions together, the resulting particle distribution of the bottom ash as a whole (*i.e.*, wherein approximately fifty percent of the bottom ash has a particle size less than about .012 inches) and/or that the bottom ash and the cement are in a ratio between 2:1 and 2:3 by weight. Mere conclusory statements, such as contained in the Final Office Action (*e.g.*, "it is the examiner's position that control of particle size would have been an obvious design choice absent a showing

of criticality or unexpected results” (page 3, last paragraph) or “[t]he prior art overlaps applicant’s ranges and thus meets their claim limitations” (page 5, second paragraph)), does not provide the articulated reasoning with some rational underpinning to support the legal conclusion of obviousness. *See KSR International Co. v. Teleflex Inc.*, 550 U.S. ___, ___, 82 USPQ2d 1385, 1396 (2007) and § MPEP 2142. As such, Applicant submits that the Examiner has not met the initial burden of factually supporting any *prima facie* conclusion of obviousness and, thus, Applicant is under no obligation to submit evidence of nonobviousness. *See* § MPEP 2142.

Even assuming *arguendo* that the panel determines that the Examiner has met the initial burden of factually supporting any *prima facie* conclusion of obviousness, Applicant submits that the Examiner has failed to properly consider the evidence supporting the patentability of the claimed invention, including the evidence in the specification. *See* § MPEP 2142. In this regard, the specification discloses and provides illustrative working examples that structural products formed from cementitious compositions of the present invention have seven-day compressive strengths of at least about 2,500 psi and twenty-eight-day compressive strengths of at least about 4,000 psi, which far exceed any compressive strengths obtained in the prior art.

The Examiner’s rationale for excluding these results is that Applicant deleted the recitation of these compressive strengths from the claims. (*See* page 4 of the Final Office Action, first paragraph). Applicant deleted the recitation of these compressive strengths from the claims in order to overcome the Examiner’s objections to the specification and suggestion that Applicant restrict the claims to the specific working examples set forth in the specification, which Applicant traversed. (*See* pages 10-11 of the Amendment dated September 23, 2005). Inasmuch as the Examiner has failed (a) by his own admission, to properly consider all the evidence, including the compressive strengths disclosed in the specification, and (b) for the reasons discussed above, has failed to provide evidence which as a whole shows that the legal determination sought to be proved (*i.e.*, the reference teachings establish a *prima facie* case of obviousness) is more probable than not (*see* § MPEP 2142), Applicant submits that the Examiner’s determination as to obviousness should be reversed.

To the extent the panel determines that it this is an appropriate circumstance to propose amendments to independent Claims 1, 26, 34, and 41 to recite the compressive strengths disclosed in the specifications (*i.e.*, at least one of a seven-day compressive strength of at least about 2,500 psi and twenty-eight-day compressive strength of at least about 4,000 psi), Applicant would accept the panel’s proposal.